B.C. Ministry of Transportation Newsletter

Road Runner

Volume 35, Issue 11

Summer 2001

The final link

by Leanne Jones, Communications Officer

Building a new highway isn't just about grading and paving. It's more like a balancing act between numerous diverse components, and the new inland route from Parksville to Campbell River provides many examples.

Geological differences along the 128 kilometre corridor demanded different approaches, from containing acid rock drainage to identifying a bedrock undercut at the Oyster River Bridge location, which resulted in a unique sloping pier design.

Environmental solutions were required for traversing sensitive fish and wildlife habitat areas —usually a combination of avoidance, recovery, replacement and enhancement. Elk herd movements were analyzed to determine the proper location of wildlife fencing and crossings. One particularly noteworthy challenge was figuring out how to safely allow a completely different type of cross-traffic...when faced with the migratory path of the western toad.

Various engineering techniques were applied. In one instance, steel piles were pounded into a wetland over an extended distance to form a pier system for a steel deck and, in another, the grade was preloaded with an enormous amount of material to compress the ground instead of excavating through the swamp. This eliminated sedimentation, and an extensive network of culverts ensured water movement through the area was unimpeded. To build a new bridge over the Campbell River, a major portion of the structure was pre-assembled on shore and then launched across the river onto bridge supports by sliding two 150-ton spans across rollers and Teflon pads. The Tsable River

Continued on page 2

The stretch of the Vancouver Island Highway between Courtenay and Campbell River marks the final phase of the project.

Sheep say 'bah' to new salt mix

By Debra Crozier-Smith

Road salt tastes as good in summer as winter.

Sheep like salt. That's a well-known fact. The critters need it for their health, and they seek it out whenever they can. This habit poses a real hazard to motorists when mountain sheep wander onto the highway to lick anti-icing road salt.Ministry environmentalists have been scratching their heads over this problem for some time, but may have come up with a unique solution.

Mountain sheep straying onto provincial highways to lick road salt may find their favourite treat too hot to handle if cayenne pepper is added to the traditional anti-icing mix. That's right. Cayenne pepper!

Last winter Alberta began adding lithium chloride to its road salt mix to discourage caribou from licking salt in highway traffic

Continued on page 4

Pebbles and Blam-Blam

Lillooet-Pioneer Road 40, which runs from Lillooet to Gold Bridge, is known for its rock falls. This route exceeded its reputation on March 19 and 23 when "pebbles" of up to 30 tonnes came down the slope, hit the road and seriously cratered it.

One of the larger rocks had to be dynamited into pieces before the contractor could remove it. The same contractor, Interior Roads Limited, also repaired the road damage. The truck beside the rock in the photo belongs to Bill Balbernie, Road Supervisor for IRL.

Road Runner

The Road Runner is produced entirely in-house by the communications branch of the Ministry of Transportation and may not be reprinted or republished without permission.

Sam Brand, Garth Coward, Dan Mayberry, Peter McPherson, Kathie Miller and Barry Wilton sit on the editorial committee.

Story ideas, submissions and letters are always welcome and may be submitted to your regional communications coordinator or by e-mail to:

Peter.McPherson@gems5.gov.bc.ca

The next deadline for submissions to the Road Runner is **October 11, 2001.**

Regional communications coordinators

South Coast
Dan Mayberry ..... (604) 660-3897

Thompson-Okanagan
Jim Davidson ..... (250) 828-4260

Kootenays
Cindi Trowbridge ..... (250) 354-6412

Northern
Ron Wiebe ..... (250) 565-6491
David Belford ..... (250) 847-7577

Vancouver Island
Debra Crozier-Smith ..... (250) 356-2279

VIHP

(cont'd from page 1)

Bridge was built from the middle outwards using a travelling form.

Other factors included traffic and population forecasts, public consultation, property negotiations and partnering with local governments to synchronize municipal works.

As a result, the team at the Vancouver Island Highway Project represents a fusion of many specialty areas: engineering, biology, contract administration, finance and estimating, landscape architecture, properties, communications and construction.

Look inside to delve deeper into the Inland Island Highway experience and find out about frog fences and 65-85 million year-old fossils.

The last public bus tour gets close up and personal with the paving activity.

Road maintenance in fish habitat

by Wally Smith, Regional Environmental Coordinator

Road maintenance, although not as glamorous as construction of bridges and HOV lanes, is a necessary activity in maintaining our highway infrastructure. We are responsible for the maintenance of over 40,000 kilometers of highway, which have the potential for ditches on both sides and more than 160,000 culvert crossings.

Most highway ditches are constructed channels, however many ditches are connected to fish bearing streams. Environmentally, this is where the problem begins. Maintenance Contractors must apply to the Federal and Provincial Environmental Agencies for approval to "work in and about a stream" to clean highway ditches or to maintain culverts.

A "stream" is a "natural watercourse or source of water supply, whether usually containing water or not, ground water, and a lake, river, creek, spring, ravine, swamp and gulch". The definition of "stream" includes all those watercourses that are considered to be fish habitat, including channelized streams and ditches.

The Fisheries Act defines "fish habitat" as "spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes". This definition indicates that watercourses, including but not limited to streams, ditches, ponds and wetlands that provide water or nutrients into a fish bearing stream, are considered fish habitat even if they do not directly support fish and/or if they only have temporary or seasonal flows. The definition indicates that not only the watercourse itself, but also the vegetated streamside (riparian) areas that provide nutrients and shade to the stream are considered part of fish habitat.

Environmental Services in south coast region in partnership with Fraser Valley District has implemented a program of fisheries classification for highway ditches to aid the maintenance contractors in scheduling routine ditch and culvert maintenance and to minimize the impact to fish habitat. In the short term, classification will alert the need for environmental agency approval in sensitive areas and also identify areas where formal approval is not required. In the long term, the aim is to obtain protocol agreements with the environmental agencies to allow ditch and culvert maintenance to be carried out without the need for individual approvals.

The classification system will depend primarily on determining fish presence by sampling. In areas where fish are not present, habitat values will be based on food and nutrient production. All fish habitat along the highway system will be classified, including: ditches, creeks, rivers, ponds, wetlands, swales, sloughs, flood plains, etc. The presence of rare and endangered species as well as culverts that are not passable to fish will be documented. Data sheets related to the Road Features Inventory will be maintained for each section and colour coding of the section recorded on 1:20,000 Trim Maps.

The classification system is as follows:

Class A (solid red)
-Fish present/potentially present all year.

Class AO (broken red)
-Fish present primarily during the over-wintering period.

Class B (yellow)
-No fish present, no access, significant food/nutrient value.

Class C (green)
-No fish present/no access, insignificant food/nutrient value.

Information gathered during classification is being shared with the Fraser Valley Regional District and the Habitat Restoration and Salmon Enhancement Program of Fisheries and Oceans Canada. A "Sensitive Habitat Atlas of the Fraser Valley Regional District" will be produced with this and other habitat information. Extensive data sharing will help produce an atlas that is user friendly and contains accurate maps.

The classification process will go a long way in bridging the gap between the need for ditch and culvert maintenance and the need to enrich and protect fish habitat.

John Hallam "voted off the island"

After 35 years of service, John Hallam, Area Manager for the Kelowna area of the South Okanagan District, decided to pack in his pens and pencils and cell phone and retired on May 18, 2001. District staff hosted a celebration evening on May 10th at a local golf club - very appropriate as John and his golf clubs will be touring the various golf courses during all the spare time that he will now have.

There were several presentations from his co-workers that kept the crowd laughing most of the evening. Bill Bedford, District Highways Manager for the South Okanagan District, did an excellent job emceeing the evening and presented John with gifts of appreciation and thanks - a digital camera and a scanner for his home computer. The evening was topped off in true "Survivor style" as John's co-workers, torches in hand, voted him off the island. He was presented with a souvenir Survivor shirt and survival backpack filled with office supplies for his journey into retirement. We wish him good health, sunny skies and many a 'hole-in-one'!!

Markin's Bluff retaining wall – overcoming natural hazards

A failing section of Highway 31, 15 kilometres north of Kaslo, was repaired this spring with the construction of a new concrete poured-in-place retaining wall built by B.A.T. Construction. The project was particularly tricky with a 100-metre fall down to Kootenay Lake and reduction of the highway to 24-hour single-lane alternating traffic. A job well done by Ben Wu, Engineer in Training, Project Manager, Rob Kaleka, Project Supervisor, Ian Pilkington, Geotechnical Engineer and Joan Preston, Safety Officer.

Deborah Newby, our Manager, Financial Services has returned. Deborah has been quite busy working on a high priority personal project. We are happy to report this was successfully completed on time, but will most certainly will be way over budget!!!

Deborah and husband Fred, added daughter Madison to their project team and have submitted the above progress estimate as work to date. Please join us in congratulating Deborah, and welcome her back to the ministry.

Sheep

(cont'd from page 1)

lanes. Lithium chloride makes the animals, shall we say, somewhat nauseous. As the caribou begin associating eating road salt with an upset stomach, they are expected to seek out their favourite treat elsewhere.

We don't know if this solution would be effective with mountain sheep. Still, a herd of mountain sheep vomiting along the side of a scenic route doesn't quite fit in with the standard vision of Supernatural British Columbia. The ministry's Environmental Management experts have been looking at ways to make the salt taste bad without hurting the animals. They first considered using Tabasco sauce. Len Sielecki, an environmental issues analyst, priced out this option and found that a gallon of the hot stuff costs about $32US. The price isn't too bad, since hitting a mountain sheep with your car can cost a fortune in repairs. But, as the title of an old Marilyn Monroe movie goes, "some like it hot." Animals, like people, have individual tolerance levels for spicey food. A switch to a Tex-Mex menu just doesn't bother some sheep. They are only deterred by the very hottest sauce, which happens to be the expensive gourmet varieties only available in five ounce bottles. While the animals can't be faulted on their taste, it's neither a practical nor fiscally wise solution.

Cayenne pepper, however, is readily available, cheap, edible and hot as Hades! In large enough doses, it should turn off the most dedicated salt-licking sheep.

Nancy Newhouse, ICBC's wildlife consultant in Invermere did preliminary testing of cayenne pepper with domestic sheep. She found an 18 to 1 ratio of salt to cayenne did the trick for all the animals. The next step will be to determine if mountain sheep react the same way, but finding the wild ones has been a real challenge. Just when Nancy was ready to try the cayenne out on a herd wintering at a local golf course, the sheep headed off to the mountains!

Looks like we'll have to wait until Nancy finds that herd before she can tell us if cayenne pepper will keep sheep off the highway. Stay tuned . . .

In Profile

Provincial Highways Condition Centre

Kim Seale, Communications Operator

The February 28 earthquake threw many South Coast Region departments off their regular schedule, but not the Provincial Highways Condition Centre (PHCC). "We operate 24 hours a day and handle emergencies on a daily basis," says Charlie Blaschuk, regional operations technician and supervisor of the PHCC.

Located on the third floor of the South Coast Regional office building, the PHCC tracks conditions on highways throughout the province. In the event of an emergency the PHCC will engage the services of police and emergency crews. PHCC operators track the operations of the ministry's inland ferry system. In the Lower Mainland, the PHCC also monitors incidents on major traffic arteries under other jurisdictions that could affect provincial routes. "In the Lower Mainland a problem on one major artery has a spillover effect onto other roads," says Blaschuk.

The PHCC operates on two different schedules, summer and winter. The summer schedule runs from approximately mid-April to mid-October. "In summer there are only two of us on duty," says Lou Mitchell, PHCC operator. "During the day there is an operator and a road reports editor. At night and on weekends, only an operator."

During the summer the PHCC mainly provides information on load restrictions, rockslides and roadwork on the highways. "We're the central information source for province-wide load restrictions during the spring thaw," says Kim Seale, road reports editor.

Winter is the busiest time for the PHCC. Lou Mitchell says, "In winter we always have two operators on duty, and a road reports editor is here on weekends." In winter the PHCC is kept busy by accidents, avalanches and severe weather conditions.

Maintenance crews across the province send information about road, bridge and weather conditions into the PHCC by radio, phone and fax. Once the information is received the PHCC logs it and passes the information on to the public and other transportation stakeholders. With their links to crews throughout the province the PHCC also gathers information on weather conditions and passes it along to Environment Canada meteorologists to update their forecasts.

"One thing you learn in this job is how variable the weather in our province can be. We can have a freezing cold night in the Kootenays and then a warm day, combining to create an avalanche," says Seale.

With the advent of technology the PHCC now has many more ways to communicate road conditions. Information is posted on the internet, Talking Yellow Pages, a 1-900 number, cable television, and through faxes.

Amy Hock, Radio Room Operator

Because of their communications links the PHCC becomes a popular place in an emergency. Allan Galambos, regional bridge rehab engineer, says, "The PHCC is a very valuable resource for the ministry and the province as a whole. They are the first people I would go see in the event of a disaster to find out what is going on. They have all the latest information from a variety of sources, and I can use that to help formulate a response plan for my crews."

As a province-wide resource the PHCC is equipped with maps and phone directories for every region in the province. Map boards are mounted along the walls, and a chart is maintained for general weather and surface conditions on major highways. The charts and map boards help the PHCC operators quickly provide the public with information without having to place callers on hold. "When you've got someone calling in from the Kootenays to check on avalanche conditions you can't ask them to wait while you scan for reports on the computer," says Amy Hock, PHCC operator. "You have to tell the caller what they need to know right away."

As Charlie Blaschuk puts it, "The lifeblood of the province are the highways and the PHCC is the finger that monitors that pulse."

Getting the best for bridges

By Debra Cocar Smith

Some creative partnering between the ministry and Mainroad MidIsland Contracting has significantly reduced the number of bridges on the Central Island District's rehabilitation program.

In 1989, the Central Island District was responsible for 65 timber structures, many in deteriorating condition. Today, there are only 34 timber bridges in the area, most in excellent condition. In the last 12 years 19 have been replaced by major contract through District and Region, while 15 have been upgraded through the partnering process. Of the remaining 31 structures, four await major replacement while the others are currently in good to excellent condition. This is a triumph when you consider the problems associated with timber structures today.

Local log timber bridges rely on log stringers that are usually over 40 feet in length. But logs of that length are increasingly difficult to get, even in Vancouver Island's well-established rain forest. In other areas of the province, particularly in the north where trees tend to be smaller, suitable logs are extremely expensive and almost impossible to find. A deteriorating timber bridge is a headache for the ministry and for the maintenance contractor. The existing maintenance contract assigns a certain cost to providing a log. However, due to the scarcity and the difficulty logging companies have in locating and hauling the oversize logs out of the woods, prices have jumped drastically in the last few years. The cost of replacing a log in a bridge eats quickly into the maintenance contractor's profit.

By putting their heads together and 'thinking outside the box' Pat Trippell, the ministry's area bridge manager, and two of Mainroad Mid-Island Contracting's bridge managers, first Don LaBerge and most recently Ross Shepherd, have found some creative solutions. Their success is due to the contractor's progressive attitude and the ministry's willingness to be flexible.

There are two basic rationales behind their planning. Given the cost of log stringers on today's market, it is not always financially feasible for maintenance contractors to use logs when other, more permanent building materials are available, such as concrete box or steel I-beam stringers. From the ministry's viewpoint, log bridges are really only temporary, as steel and/or concrete structures last a much longer time. If the maintenance contractor is willing to use these more permanent materials, it can benefit everyone.

There are some hurdles to be crossed, though. Steel and concrete stringers are much heavier than wood. Installing them requires a crane and other adjustments. None of this comes cheaply, so using them instead of logs requires a real partnership and careful consideration between the ministry and the contractor.

Most badly deteriorated bridge structures are put on the rehabilitation program list and paid for from the rehabilitation funding assigned to each region. Maintenance contracts require the contractors perform the routine, annual and preventative activities necessary to properly maintain these structures.

When a Central Island District log stringer or sawn timber structure requires work, Pat and Ross look at the structure and consider the available sources of materials and funding to determine if this bridge would be a suitable candidate for some 'creative' thinking. The recent work on Ladysmith's Goat Bridge is a good example.

The existing sawn timber bridge was built on concrete abutments. In 2000, some portions of the structure badly needed replacement, including the deck and pier supports. Several motor vehicle accidents had damaged the cross-ties, weakening the rail and compromising safety. The sawn timber stringers were only in satisfactory condition for their age, so simply replacing the deck would be a short-term solution and not necessarily a sound financial investment.

Pat and Ross looked at the bridge and considered the options. Adhering to the contract by replacing the deck and rails would have cost at least $28,000. The bridge had been re-decked and re-paved for $35,000 in 1993, but had only lasted seven years. Building a brand new structure would cost about $400,000. The question was, would further repairs be good value for money over the long term?

Pat and Ross noted that the bridge length was within standard concrete box beam parameters. Capitalizing on the bridge's existing useful components, in this case good concrete abutments, could contain costs. Furthermore, engineering plans already existed for similar structures. Rebuilding Goat Bridge with concrete box beams, using today's technologies and materials, and utilizing the maintenance contractor's skills and cooperation would cost only $150,000. The resulting structure would have a life span similar to a totally new bridge, while saving the ministry $250,000!

The value to the contractor in taking this route is obvious. The improved structure would require less maintenance and would be less of a risk in the future, cost- and condition-wise. This is an important consideration when you remember that the road and bridge maintenance contract assigns $50,000 a year ($25,000 deductable for each incident) to repair emergency situations such as washouts and other acts of God. If there isn't an emergency, the contractor keeps that money as profit. There are also non-quantifiable benefits, such as earning community good will and the advertising value of showing the good work that contractor and ministry are capable of performing.

Goat Bridge is only one example of the kind of cooperative bridge projects undertaken by Central Island District and the maintenance contractor. Similar concepts and strategies have been used on about 15 structures in the Central Island Area. The benefits of this type of partnering offer exciting new possibilities for the ministry in a time when dollars are scarce and the ministry is looking for new efficiencies.

Kootenay history revisited

by Jason Jackson, Regional Council Manager

Bud and John Schaupmeyer were trappers in the Nancy Greene function area of Highway 3, between Christina Lake and Castlegar in the late 1930's and early 1940's.

Ben Shaw's grave on the trapline where he died. Revisited by John and Bud Schaupmeyer in May 2001.

Recently, Bud and John were retracing steps from their past and this included visiting the gravesite of trapper Ben Shaw who died in 1936 at age 79. He was buried about a kilometre from his cabin and the grave marked with a simple cross of tree limbs in what is now the ministry's Snowshoe Pit. John leased the trapping rights for the Sheep Creek drainage from Ben's widow, Babe.

The area was very isolated with no roads or railways within 20 miles. The old cabin on the shore of Sheep Lake (now known as Nancy Greene Lake), was long gone before Highway 3 was constructed in the 1960's, but the location is thought to be under the highway fill.

On May 7, I had the privilege of meeting Bud and John, visiting Ben's grave and listening to their trapping and war stories. A little Kootenay history revisited.

Shy and retiring? Not likely!

Logan Stewart, Director, Properties Branch

Those who know Logan Stewart realize he has had a varied and very interesting career starting with the military. After serving in the armed forces as a lawyer with the Judge Advocate General, Logan joined the Alberta government as Crown Counsel and subsequently made his way to British Columbia as a lawyer with the Ministry of Attorney General in Victoria. That's when his 21-year association with the Ministry of Transportation began. He advised the ministry as its lawyer for several years before becoming the Director of Properties. His duties also included an active role in the Provincial Emergency Program.

His recreational pursuits are just as active. Logan loves to ski, especially at Mount Washington where he has a condo. He spends as much time there with his family as he can. It is not surprising, therefore, that a cross section of 65 people from his many activities gathered at Milo's in Victoria on April 25 to wish Logan well in his retirement and, of course, take the opportunity to roast him.

Mary Koyl, who not only kept the evening flowing as Mistress of Ceremonies, also takes over the duties of director of the Properties Branch. Spencer Manning and other colleagues from attorney general, provided humourous tributes and great engineer jokes of the kind one could expect from lawyers! Logan's right of passage from "boss" to "house husband" was acknowledged when Deborah Miller presented Logan with an apron and duster. Logan was good enough to model his new attire. Oddly enough, he looked quite comfortable.

A highlight of the evening was the arrival of an uninvited guest (or was she, Svein??) who provided Logan with a head-spinning send off in the form of an intriguing belly dance. Eight others, some of whom missed their calling as stand-up comics, paid tribute to Logan by sharing their reminiscences of him. All in all it was a memorable evening for Logan and Terese and all who attended.

All of Logan's friends and colleagues wish him a great retirement but somehow the words "Logan" and "retirement" do not go together. Whatever the future holds, we wish Logan the very best!

CAR-CAR

by Cindi Trowbridge, Regional Operations & Communications Coordinator

On Friday, June 8 the ribbon was cut officially marking the completion of the Cranbrook arterial realignment (CAR) project amid the classic cars and hot rods of the Rockin' in the Rockies Car Club, celebrating their 10th anniversary.

Mayor Ross Priest, MLA Bill Bennett, District Highways Manager Dave Byng, Project Manager Bill Smith and Project Supervisor Al Jones participated in the event, which included an opportunity to go "cruisin'". District development approvals clerk Audrey Prazinak appropriately attired in poodle skirt and saddle shoes helped organize the successful event.

The construction project removed two 90-degree curves on Highway 3/95 through the City of Cranbrook. A traffic liaison committee that met regularly to address business concerns contributed to the success of the project.

Dave Byng, District Highways manager, speaks at the opening of CAR.

An aerial view of the Cranbrook realignment shows the finished project.

Highway safety heats up

Imagine a lonely stretch of two-lane highway in B.C.'s Interior on a foggy night.

A doe and her fawn graze at the edge of the road. Suddenly, the headlights of a small car travelling at 80 kilometres per hour appear around a nearby corner. Immediately sensing the approach of the vehicle, the fawn steps onto the highway, startled and confused.

Now imagine the driver of the car is somehow warned of the animal's presence on the road ahead in time to avoid hitting the young deer.

Thanks to brand new heat-detecting cameras and software being tested on provincial highways, you may not have to imagine this scene for very much longer.

The Ministry of Transportation has teamed up with ICBC, the B.C. Conservation Federation and the B.C. Wildlife Federation to test a high-tech infrared camera system that can identify various species of wildlife that are frequently hit by vehicles. Adapted from the aerospace industry, the equipment is sensitive enough to measure a 1/100th of a degree Celsius difference in temperature over a range of two kilometres.

When the sophisticated but rugged system detects an animal, it instantly activates a highway sign that flashes a message to warn drivers that wildlife is present directly ahead. The signs are positioned so drivers have time to avoid potentially dangerous collisions with large animals such as deer, sheep, moose and elk, which can weigh from 68 to 630 kilograms.

Spring and fall are the two deadliest seasons for wildlife collisions, since many animals relocate to seasonal ranges during those times. Official records show at least 4,500 animals die each year after being hit by vehicles. Many other animal deaths may go unrecorded.

The transportation ministry has been instrumental in supplying technical expertise and analyzing wildlife collision data to identify the best locations to test the equipment.

Once the infrared camera systems have been tested this season, there is a possi-

Continued on page 9

RIMS SPEAK!

This is one of a series of articles from the RIMS *Project Team to introduce you to some of the vocabulary that you are sure to encounter with the introduction of* RIMS.

RIMS is not only an acronym for the Road Features Inventory (RFI), it will also provide the ministry with a Corporate Linear Referencing System (CLRS). But what is a 'CLRS'?

A CLRS is a consistent way of describing locations on a road. For example, if you are asked to describe where the Ladner Creek bridge is located, you might respond by saying that it is 20 km north of Hope on Highway 5. But, is that 20 km from the city limits, or 20 km from the centre of Hope? Someone else might describe that same location by referencing it to another landmark, like 28 km south of the Toll Plaza. Someone with access to a GPS unit might describe the location using x/y co-ordinates.

The problem currently in the ministry is that there are several linear referencing systems (like RFI and the LKI) but they don't relate to one another. It is like having people in different parts of the ministry talking different languages, with no one to interpret what they are saying. They may be saying the same thing, but no one really knows.

A Corporate Linear Referencing System will allow everyone in the Ministry to describe locations in the same way.

Watch for more RIMS SPEAK!

We will soon be setting up a RIMS *website where you can find out more about* RIMS.

Fletch lives (and swats flies)!

Welcome to the north country Jim! The construction field office couldn't function as smoothly without guys like Jim Fletcher.

He doesn't rule the roost and he isn't the skipper of the ship; nevertheless, he is one of the unsung heroes of the construction field office. Without folks like Jim Fletcher to oversee a multitude of administrative details, the lives of his crewmates would be much more complicated and far less pleasant.

After 22 years in the business, you'd think a guy would be used to life on the road. For the most part that's true, but his current assignment is considerably different than most. Normally, Jim and his crew would be toiling on projects in the lower mainland. This year, in a continuation of a project they embarked upon last season, they've found themselves about as far from home as one can get in this province.

Over the past couple of years, there hasn't been a ton of road work happening in the Lower Mainland area, but in Peace country, it's been a different story. Thanks to the Oil and Gas Initiative, the amount of work to be done has exceeded the regular resources of Region Four to handle the workload. So, in a reallocation of resources, Project Supervisor Bob Newton volunteered his crew to tackle the multi-year, Liaird Highway upgrading project, north of Fort Nelson.

For STO-1 Jim Fletcher, it's been a mixed blessing. "Mainly because of the location," he explains. "You only get to see your family every five weeks or so and that's the difficult part. On projects in the lower mainland, at least I got to go home on weekends."

These extended absences have posed a real test of strength for Mrs. Fletcher, who has had to take on an extra workload herself in juggling employment and added parental responsibilities while Jim is off in the boonies.

"I'd rather be back in South Coast and working there," Jim lamented. "However, working with the project supervisor we have is excellent, and that's why it didn't bother me too much to come up here, because I'd rather work for him than anyone else."

Like most people who travel Highway 77 for the first time, Jim was surprised to find the main route between Fort Nelson and Fort Liard is little more than an elaborate forest service road in less than ideal shape. By the end of next construction season, the route will look much the same as most numbered highways in the province.

Though he claims this isn't exactly his "cup of tea," Jim's found his silver lining. "It's a nice job to work on and the people up here are very friendly," he says. "You see a lot of wildlife that you don't see down on the coast—lots of black bears, deer and moose."

And has he gotten used to the black flies yet? "Yeah, they're no problem, but these other things..." he says with a laugh, "I don't know what they're called, but they got big antennas and they can really take a chunk out of you!"

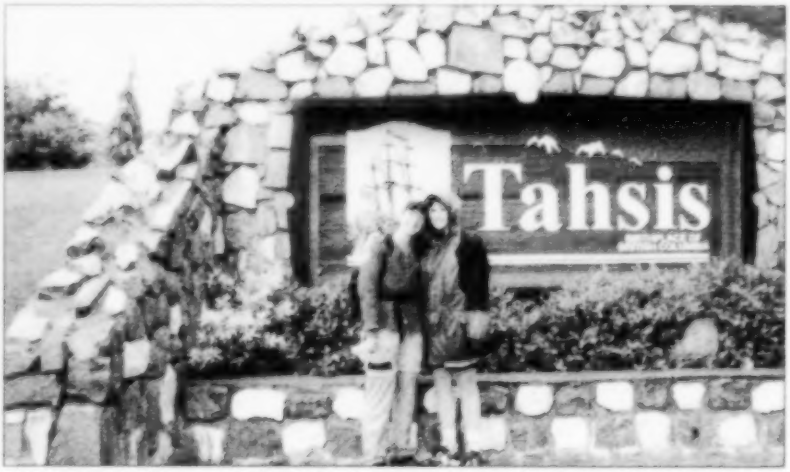
Highway safety heats up *(cont'd from page 8)*

bility that the portable equipment might be relocated to other areas of the province, depending on the species and the season.

ICBC is spending more than $100,000 this year to test the system in two locations: Kootenay National Park and on Highway 93 between Radium and Cranbrook. In addition, the B.C. Conservation and the B.C. Wildlife Federation are hoping to raise additional funds towards testing the infrared technology. Although the total bill for testing the prototypes might reach $500,000, wildlife loss, human fatalities and property damage are currently costing the province at least $30 million each year in insurance claims and clean up.

Vancouver Island Region's great walk

Vancouver Island is home to an annual charity event that is billed as "North America's Toughest Walk." Participants walk 63.5 kilometres of logging road from Gold River to Tahsis. There are many steep hills, so it is not for the faint-hearted. This year's 24TH Annual Tahsis Lions Club Great Walk saw 964 participants at the starting point. Only 803 were able to finish.



Friendly? Perhaps, but more likely leaning on each other for support. Sandy and Samantha complete North America's toughest walk.

That intrepid group of 'finishers' included two representatives from Vancouver Island Regional Human Resources branch: human resources technician Samantha Eck and human resources officer Sandy Hickox. Since walkers can collect pledges for charities and non-profit organizations of their choice, Samantha chose to collect for the SPCA, and Sandy collected for the Hospice Society. Their Region 6 co-workers were most supportive and generous in their pledges, if somewhat skeptical about Sandy and Samantha's decision to participate.

For those of you who might be interested in joining the Great Walk in the future, Samantha and Sandy are sharing their experience below; here it is, in their own words.

* * *

4:00 a.m. (yes, 4:00 in the morning!), June 2nd – After only three hours of sleep in our vehicles, our group of seven assembles at the Great Walk start line in Gold River. We are excited and enthusiastic. As we begin the walk, we set some rules: no complaining, keep a gung ho attitude, and keep a good pace. By 5:30 a.m. it is quite light. We now can see the beauty of the wild country surrounding us with its waterfalls, lakes, rivers and an incredible variety of trees. We also notice the dark clouds above. Obviously we wouldn't need the sunscreen we packed. Shortly thereafter the rain started.

Checkpoint 6 (half way point). We stop for about twenty minutes to check our feet, apply moleskin to the developing blisters, and enjoy some hot soup. We've been walking for seven hours. We are tired, cold and wet. And we are only half way through! At this point, a number of walkers drop out. Another walker pulls a sign from his packsack. It reads "Quitters never win, and winners never quit". The words give us a boost.

Checkpoint 8 – We've been walking for about 10 hours. The checkpoint volunteers warn us that the next 6 kilometre stretch to Checkpoint 9 will be the hardest yet. It's uphill all the way!

Checkpoint 9 – We think we're going to die.

Checkpoints 10 to 12 – We can't even look at the checkpoint volunteers anymore. We say to each other, "I can't believe people do this more than once" (in fact, some people have participated in this walk annually for the last 24 years!). We also vow never to do this blasted walk again!

Checkpoint 13 (3.6 km to go) - We've slowed to a crawl, forcing one foot in front of the other. Most of us are limping. Finally we see the "Welcome to Tahsis" sign. But, once we get there, we discover this is NOT the finish line. We have to walk another 1.3 kilometres to the finish line, at the recreation center. That seems a VERY long way.

The finish line – Fire truck sirens welcome us. Tahsis residents clang pots cheering us on. In fact, the road is lined with people congratulating us. But we hardly care or even take much notice. It's too much effort to smile at people or move our heads in their direction. We reach the Recreation Center and clock in our time: 14 hours and 41 minutes of walking. We have mild cases of hypothermia. The centre has chairs set up for the walkers, but most of us just collapse on floor mats. As we drop to the ground, the volunteers bring us emergency blankets and hot soup. We snuggle together, dazed but triumphant. We made it! We completed the Great Walk!

* * *

That's the story of Sandy and Samantha's participation in the 24th Annual Great Walk – for this year! Samantha raised $450 for her charity, and Sandy raised $360. Stay tuned for what happens at the 25th Annual Great Walk. Somehow in the post walk euphoria, both women are considering taking part again next year!

RoadRunner Supplement

Vancouver Island Highway Project

Volume 1, Issue 1 www.th.gov.bc.ca/bchighways/vihp/vihp.htm Summer 2001

Toads in the hole

By Craig Barlow, Environmental Coordinator

INSIDE:

Public involvement 2
Crew relocation 3
Social club 3
Stairway to Bevan 4
Wetland challenge 5
Acid indigestion 6
Morrison Creek 7
Construction Management Staff 7
Designers 8
Ministry Employees 8

How does one go about protecting migrating Western Toads that are compelled to cross the highway? In the Keddy Swamp area between Courtenay and Campbell River on the nearly completed Inland Island Highway (IIH), highway designers, biologists and construction crews on the Vancouver Island Highway Project (VIHP) were faced with that very problem.

The IIH immediately north of Millar Creek passes within 100 metres of the west side of Keddy Swamp, a large wetland (for fish and wildlife) created cooperatively by Fisheries and Oceans Canada, Ducks Unlimited and the local landowner. During design, fisheries and wildlife biologists do their best to identify all habitats that might be impacted by the construction of the highway. This includes fish, elk, deer and other smaller, less obvious critters such as amphibians. Where possible, fish and wildlife ponds have been built when the conditions allow.

However, no one anticipated intercepting a westward migration of tens, if not hundreds, of thousands of juvenile Western Toads until they were observed crossing the future highway during grade construction in August of 1999. On further investigation by the environmental monitor the following summer (late July 2000), it was discovered that a significant hatch of western toads along the fringes of the swamp had occurred—a carpet of tadpoles lined the bottom of the swamp.

Photo by Charles Gallo

One week later, metamorphosis had started the transformation from aquatic tadpole to terrestrial toad. Partially tailed toadlets were lining the swamp in staggering numbers, huddled in groups of hundreds. One week after this, they were on the move through the grass, heading conveniently for the new highway. Under each footstep were several toads if one did not walk with extreme care.

Installation of a temporary fence, to keep the "toads on a mission," worked during construction to keep them from under the truck tires. At the last minute, through a collaborative effort with the former Ministry of Environment, Lands and Parks and VIHP environmental staff, the project was able to design and install "Amphibian Exclusion Fencing" (AEF) along both sides of 1.8 kilometres of the highway near the swamp. The fencing directs small amphibians to culvert locations where they can cross under the road safely.

As luck would have it, the existence of wildlife fencing along this section of highway simplified the installation. Attached directly to the fencing, the AEF is 0.5 meters high and curled outward on the

Continued on page 5

Out of sight, but not out of mind

By Leanne Jones, Communications Officer

The Inland Island Highway's four lanes run on a new alignment away from developed areas, largely on crown and timber company lands, so that numerous impacts on residential and business properties were avoided.

But local interest was still piqued. There was curiosity in the route location, intense discussion about access points, concern about environmental treatment, inquiries about noise levels, design standards, construction activity and, of course, the number one question: "How soon can I use it?"

To meet this need, the Vancouver Island Highway Project created a number of opportunities for public involvement.

Over 28,000 people phoned in or came to the community information offices in Courtenay and Campbell River to see designs, express concerns, ask questions, pick up information kits and maps, and fill out comment forms. Phone calls came from as far away as New York, Texas (about the Tsable River Bridge) and Oregon (wildlife reflectors). Marie Newlands-Hale, Community Relations Representative with the Courtenay Information Office, notes that "some folks almost have a love affair going on with this highway project, judging by their passionate responses or just in the way they look at the drawings and photos in reverence and fascination." One visitor from the United States said, "I am very impressed by the care and consideration taken building this highway—this would never happen back home."

Beginning with the first one in 1987, nearly 10,000 people attended the more than 30 public information sessions held to cover corridor proposals, route selection, various specific alignments, and detailed design.

The project also met regularly with five liaison committees composed of local residents, municipal staff and elected officials who represented stakeholders from various sectors including ratepayers, local business, recreational trail users, wildlife, forestry, streamkeepers and first nations. In some cases, special stakeholder meetings were also held to address specific issues.

At the request of the community, the Vancouver Island Highway Project participated in the Comox Valley Fall Fair in 1998 and 2000, drawing more than 2500 visitors to the booth.

Public bus tours were probably the single most effective means of demonstrating tangible results to the residents—and satisfying the ever-present curiosity factor. Thousands of people gave up their Saturday mornings to cruise parts of the route in varying stages of construction. Some of the popularity likely stemmed from the fact that work was not visible from the existing coastal highway. This helped guarantee an overwhelming response, along with wait lists and positive feedback from the majority of participants. One time, a student considering a future career in engineering drove up from Victoria to attend a tour and, on another occasion, visitors from Norway attended. As well, some tours were tailored for specific stakeholder groups such as liaison committee members, streamkeepers, college students, emergency service providers, public officials and the media.

Public gets one last chance to see new highway before opening day.

Photo by Eddy Piasentin

Information was also provided via news releases, the Web site, maildrops and posting information on group mailboxes and community message boards.

From elementary school children planting vegetation at Morrison Creek, to 'regulars' who periodically checked in at the Information Office or attended every public bus tour, the opportunities were as diverse as the groups that showed interest.

BRITISH COLUMBIA

Ministry of Transportation

The **Vancouver Island Highway Project Newletter** is a supplement to the Ministry of Transportation RoadRunner Newsletter.

Editor: Eddy Piasentin

Layout: MoT Graphics

Printing: MoT Printing Services

Contributors: Leanne Jones
Murray Tekano
Craig Barlow
Gina Kitson
Bryan Kern
Karolyn Sweeting
Sean Wong
Jim Klaver

Where have all the crews gone?

By Leanne Jones, Communications Officer

The inland route between Parksville and Campbell River is 128 kilometres of new four-lane highway that had several ministry construction supervision crews working on it simultaneously.

Over the years, as sections were completed, the crews and supervisors have moved north, south, east—and into retirement.

With 35 years of service, Russ Zerr retired from his position as Construction Manager for the VIHP and was last seen at the helm of his motorhome headed east across Canada. Ivan Williams retired after 49 years with the ministry upon completing one portion of the South Courtenay Connector. Peter Wilson worked on the early stages of the Campbell River Bypass, and other retirements include Terry King, Bob Galloway and Alf Atkins, who worked on portions of the Parksville to Mud Bay section.

Mel Tinant now works out of Region 1 and was also a construction supervisor on the Parksville to Mud Bay section.

On the Mud Bay to Courtenay and Courtenay to Campbell River sections, Lloyd Moffat and his crew ran the Buckley Bay to Hindoo Creek and Millar Creek to Oyster River jobs, and have gone to Smithers to do a project on Highway 16 through the centre of town.

After finishing Hart Creek to Cumberland Interchange, Headquarters Creek to Millar Creek, and the Miracle Beach Connector, Barry Bergstrom and his crew are now in Taylor until November.

Doug Gentles and his crew worked on many assignments, including three day-labour projects (Hindoo Creek to Hart Creek, Dove Creek to Headquarters Creek, Comox Main to Forbidden Plateau Road). They also supervised the Forbidden Plateau Road to Dove Creek grading contract and paving from Cumberland Interchange to Headquarters Creek, and will remain in Courtenay for the next few months tying up any loose ends.

Ron Shimizu was a supervisor on the South Courtenay Connector and, together with his crew, is working on the improvements to the Trans-Canada Highway between Mill Bay and Duncan until 2002.

Two crews have moved to the Kootenays Region to work on projects that are part of the Cache Creek to the Rockies Program.

With the completion of the Cumberland Interchange to Comox Main section of the Inland Island Highway, parts of the South Courtenay Connector and the Morrison Creek enhancement work, Jim Deutsch and his crew relocated to Revelstoke to work on a new 2.2-kilometre passing lane near Wetask Lake.

Don Ranta, who last year received his 35-year Long Service Award, and his crew are now operating out of Golden. Three jobs currently under way are passing lanes at Donald Hill and Quartz Creek East, as well as the 6 Mile rock excavation contract in the Kicking Horse Canyon.

He and many members of this crew worked on the Campbell River Bypass and the most northern segment of the Inland Island Highway from Oyster River to the South Campbell River Connector.

Good work everyone and best of luck on your new assignments!

365 days of fun at 546 Yates

By Gina Kitson, Receptionist

The Major Projects office is known for its very active Social Club which brings people together in a variety of casual, fun-filled social settings. Most events organized by the Social Club committee raise funds to offset the cost of the annual Christmas party so that more people can afford to attend.

The Social Club has great events for all staff and family members to participate in, from hot dog days, pizza lunches, pancake breakfasts, bowling, bake sales, 50/50 draws, auction and an annual picnic and camping trip.

We also have a cake every month to celebrate birthdays. Most of the Major Projects team participate in one event or more during the year.

The Social Club committee consists of 5 to 6 staff members who are willing to organize each event. Personally, I have been part of the Social Club committee for the past 5 years and have found the office to be a very sociable place to work.

Fossil Find

Fossils were encountered while building the grade south of Campbell River, particularly in the Tsolum River area. These fossils consist of large clams and ammonites (extinct marine mollusks) from 65 to 85 million years ago and were found in rock from the Cretaceous Period.

None of the fossils is cultural, meaning of human origin, but reptile remains were also found.

Some of the fossils were removed by the Courtenay & District Museum & Paleontology Centre:

www.courtenaymuseum.ca

Stairway to Bevan

By Sean Wong, Environmental Coordinator

Sploosh, sploosh, thunk. Sploosh, sploosh, thunk. For decades this was the sound you might have heard near the BC Hydro Penstock culverts at lower Bevan Creek when fish were attempting to swim upstream. The culvert outlets were perched about one metre above the creek water surface. Consequently, most cutthroat trout, rainbow trout and coho salmon migrating upstream could not navigate this vertical barrier and were left at the proverbial fish altar. The salmon's heads clunking on the culvert outlets, as they tried unsuccessfully to continue on their journey, probably left them with worse headaches than Eric Lindros after a seven-game playoff series against the New Jersey Devils.

Environmental Coordinator, Sean Wong, inspects Bevan Creek.

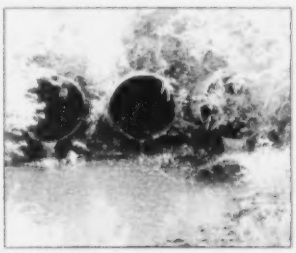
Newly built fish enhancement channel.

In partnership with BC Hydro, the VIHP devised a plan to backflood the culverts with a rock weir to restore fish passage, resulting in a stairway, if you will, for fish. In cooperation with the landowner, Comox Timber Ltd., another fishway was created by blasting a flat bedrock shelf. Where previously these areas acted as obstructions to upstream fish passage, thanks to these efforts, fish can now freely move upstream and downstream.

In addition to the work in lower Bevan Creek, 6.3 hectares of land have been set aside as an environmental conservation area. This area allows the construction of fish and wildlife enhancements and habitat protection in perpetuity, offsetting impacts resulting from highway construction. This property is being transferred to the Ministry of Water, Land and Air Protection, and local environmental stewardship groups will be involved in the long-term management of the conservation area. A 1,100-metre-long fish channel and pond complex, including salmonid spawning areas and deeper rearing areas, were built here. Spawning platforms were built using rocks and spawning gravel and large woody debris, while boulders were placed within the newly constructed stream to provide habitat and cover for fish. Bioengineering was extensively used to stabilize the newly constructed streambanks and to provide cover and shade for fish.

Five isolated ponds up to 2,000 m^2 were constructed along the highway alignment in the Bevan Creek Watershed to provide habitat for the rich wildlife populations in the area. Habitat features such as woody debris, islands, bird boxes, snags and plantings were incorporated into their creation. Additional cross culverts were installed in the highway grade south of Bevan Creek to provide passage for small wildlife including small mammals and amphibians. Wildlife fencing will be installed in this area to keep deer and elk from accessing the highway, while the Bevan Wetland Bridge will allow animals to cross safely under the highway.

As a result of all this creative work, fish are now climbing the stairway to Bevan.



Culverts installed under the BC Hydro Penstock.

Delicate drilling in wetland a challenge

By Bryan Kern, Geotechnical Design Coordinator

To the north of Courtenay, about 400 metres south of the Puntledge River, the Inland Island Highway alignment crosses the Bevan Wetland. The sensitive nature of the wetland meant that a bridge would be required. This wetland is an important fish rearing habitat and the project was required to undertake its surveying, geotechnical exploration and bridge construction with minimal impact to the sensitive environment.

Before construction could begin, the subsurface soil conditions needed to be identified, so Brent Beattie, the Geotechnical Engineer from the Thompson-Okanagan Region, had the drill crew from the South Coast Region drill several test holes. The crews used a track-mounted drill to sample the soil and rock underlying the drier, less environmentally sensitive areas of the south and north abutments.

The nine pier foundations are in the wetland, so to drill and sample at these locations, timber drilling platforms were built and the machinery was flown in using a helicopter. With the cooperation and guidance of the project's environmental monitor, the drill crews were able to successfully complete their work with little disturbance to the environment.

Drilling at Bevan camp. Left to right: Mike Cadeau, Matt Choquette, Jim Murdock, Al Mitchell, Rolf Mai, Chuck Sleasman.

As a result of all this pre-planing and preparation, the bridge is founded on piles driven either into the firm soil, or to the bedrock underlying it. Construction of the bridge was accomplished with a minimum of environmental disturbance by positioning the pile driving crane on the grade, and moving it forward onto the structure as the sections were completed.

The completed structure now spans the length of the wetland, which remains virtually untouched through the investigation and construction process.

Helicopter slinging the drill onto the timber platform, where the crew is waiting to set it up.

Toads in the hole *(continued from cover)*

top. It is high enough to prevent more ambitious jumpers and climbers from getting over it and it is also buried along the bottom, to ensure no gaps along the fence floor for them to crawl under. At culvert locations, wing fencing has been installed to "funnel" migrating toads to these crossing locations. At ungulate one-way gate locations, a more robust application was required that would withstand being stepped on by deer, elk and even humans. Culvert half pipe was buried to provide the same function. Test sections during the summer of 2000 confirmed the toads would use the culverts. This year, eastward migrating toads have already been observed moving into the culverts to get back to the swamp to breed. To our knowledge, this is only the second instance of AEF being used in Canada—the other site is in the Maritimes.

So, why do it? Ecologically, a massive migration such as this across the highway over a narrow 1-2 week period could significantly impact the toad population in this area. From a safety standpoint, the sight of these tiny creatures all over the road could distress a driver into swerving, not to mention the potential for skidding on the newly greased road surface.

Simply put, how did the toad cross the road? Why, under it, of course.

Acid indigestion

By Murray Tekano, Project Manager

For years it has been known locally that the Tsolum River, located north of Courtenay, has a pH problem that can't be solved with a little conditioner in the final rinse. After years of mining on the west side of Constitution Hill, runoff from the now closed mine has been blamed for introducing acidic water into the river via Murex Creek, a condition called Acid Rock Drainage (ARD).

North of Tsolum River.

ARD occurs naturally when rocks containing sulphide minerals, usually iron sulphide (pyrite), are subjected to weathering. When exposed to air and water, the pyrite forms sulphates that quickly turn to sulphuric acid. The lower pH from runoff acidifies the environment and can leach metals, such as copper, silver and antimony into local water courses.

This history of concern is what led the project's design team to carry out specific tests on the rock samples taken along the new IIH between Dove Creek Road and the Oyster River, looking for signs of acid generation. Under the leadership of project Geotechnical Coordinators, Bryan Kern and Don Lister, special investigation and analysis plans were created to identify and recommend mitigation of potential problem sites along the IIH.

Pass the bicarbonate was the word when low concentrations of microscopic pyrite (invisible to the naked eye) were found in samples of shale-sandstone rock at a number of locations, including the site of the planned crossing of the Tsolum River. Under the guidance of Bryan and Don, the design team had to make some decisions as the Acid Base Analysis was showing acid potentials.

The first step was to relocate the planned crossing site on the Tsolum River which would have cut right into the acid generating rock. Highway design was well advanced along with environmental agency approvals for the planned crossing and the tender date for construction was set. The design team brought both federal and provincial agencies into the process with the resulting realignment being agreeable to all without additional mitigation.

The next challenge was to address the potential for ARD resulting from the rock excavations and fills planned along the alignment where grade adjustment could not be accommodated. The design team developed an innovative approach, creating a combination of encapsulation areas within the grade and drainage collection ponds. Encapsulation areas were designed which would protect the excavated rock from water infiltration by creating an impermeable "bowl" within the sub-excavation to hold the rock along with sub-drains in some areas to collect moisture within the fill and direct the runoff toward collection ponds. The rock prism was then covered with native "till" which was methodically compacted to create an impermeable cover upon which final grade construction was carried out. This treatment allowed the optimum use of the excavated rock in the construction of the highway and eliminated the need for offsite borrow for fill.

All this rock excavation left exposed cuts behind which could also generate acidic runoff. The treatment proposed was again a two-part solution. Drainage from these areas was directed toward the collection ponds, but the ditches themselves would continue to generate ARD. To counteract this, a special mix of topsoil and ground limestone was used to line the ditches within the rock cuts, with the limestone acting to raise the pH of the ditch water. In addition, care was taken to cut off drainage from the top of the cut slopes where possible, thereby reducing potential ARD further.

Periodic pH and conductivity testing of the collection ponds will be used to monitor the water condition. If a potential problem is indicated, treatment is carried out by sprinkling ground limestone from a small stockpile into the pond to neutralize the acidic condition.

While the analysis of the background pH levels in many of the local watercourses indicates that acidic conditions occur naturally in this area, the pro-active approach by the design team to identifying the ARD potential along this corridor, and the diligence of our MoT construction supervision staff, has meant that the new Inland Island Highway will not be a further contributor to this problem.

Children from Lake Trail School plant trees at Morrison Creek.

In 2000, a fish and wildlife habitat pond and channel complex were built next to the Morrison Wetland on both the highway right-of-way and on private forestry land. Special care was given to environmental issues resulting in net gains to productive fish habitat and to the establishment of environmental conservation areas. Out of this project, strong partnerships were forged. Government, the private sector, the public, educational institutions and environmental stewardship groups all worked together to preserve the delicate environment of the Morrison Creek Watershed.

Morrison Creek, one of the most endangered rivers in British Columbia, is the primary coho salmon producing tributary of the Puntledge River. The watershed is extremely valuable for salmonids because it is well vegetated and is fed with cold, clear groundwater systems year round.

Conducted in partnership with Comox Timber Ltd., enhancement to the Morrison Wetland was designed by the VIHP. In addition to the enhancement of the main channel, work was also conducted on First Supply Creek, a major tributary to Morrison Creek. Fish habitat enhancement features within the new stream complex include salmon spawning platforms, deep rearing ponds and placement of instream cover for fish.

A 2000 mm diameter "sacrificial" metal culvert was installed in 1999 at an ephemeral (a stream that dries for part of the year) fish-bearing tributary to Morrison Creek. The culvert was installed to provide drainage and to allow fish passage through the winter of 1999/2000. The plan was to remove the sacrificial culvert in 1999 and replace it with a concrete box culvert in 2000 after settlement occurred. However, the anticipated settlement did not happen, and a decision was made to leave the sacrificial culvert in place. Some of the cost savings were used by the project to retrofit the culvert with weirs, to construct fish habitat pools, and to remove a perched culvert that was a barrier to fish passage.

The sites within the watershed have been used as environmental showcases and educational sites by the MoT, the environmental regulatory agencies, local and foreign environmental organizations, school classes and a private forestry company. Clearly, the project's efforts on behalf of the ministry are widely appreciated and will be a long-lasting contribution to the local environment.

Vancouver Island Highway Project - Inland Island Highway - Courtenay to Campbell River - Construction Management Staff (Ministry and Consultants)

Russ Zerr
Paul Baal
Sylvia Holt
Dennis Dodswort
Tom Waring
Gord Ruffo

Bergstrom Crew
Barry Bergstrom
Ralph Dodd
Rob Sylvester
Willie Allan
Dave Smith
Udo Sommer
Ken White
Doug Haywood
Dean Henderson
Rick Pfeiffer

Deutsch Crew
Jim Deutsch
Wes Yuckin
Stan Matsuda
Larry Walters
Dave Solberg
Brian Gallagher
Ron Dodd
Greg Blundell
Nick Kelly
Heather Rupp

Gentles Crew
Doug Gentles
Willie Carlson
Steve Woodbridge
Mike Castrucow
Dick Curnow
Jim Degner
Kip Lovett
Doug MacKay
Howard Montgomery

Moffatt Crew
Lloyd Moffatt
Rick Marven
John Mackay
Steve Hanna
Geordie Robertson
Melvin Smith
Harland Levesque
Bill Rhodes

Ranta Crew
Don Ranta
Bob Jackson
Cam Shearer
Dave Arnott
Rick Hundt
Phil Jupp
Lawrie Dignan
Gary Borman

Ryan Crew
Ed Ryan
Simon Stubbs
Dave Blackburn
Don Ware
John Reddin
Karen Scherr
Ken Woodward
Wayne Thompson
Dutch Gjesdal

Bridge Construction
Scott MacDonald
Ton DeGroot
Ove Lagerquist
Jim Tait
Brent Shypitka
Mike Coghlin
Don Ngai
Mel Melnechanko
Shadley Stephens
John Langtree
Ernie Wong
Matt Dybwad
Ray Steele
Doug Vellieux

Vancouver Island Highway Project - Inland Island Highway - Courtenay to Campbell River Designers (Ministry and Consultants)

ADI Ltd.
Associated Engineering (B.C.) Ltd.
Brybil Projects
C.F. Morley & Associates Ltd.
Dan Schroeter Consulting Inc.
Donald A. Blood and Associates
EBA Engineering Consultants Ltd.
Global Fisheries Consultants Ltd.
Headquarters Bridge Engineering
Herold Engineering
Hindi Engineering
Keystone Wildlife Research
MoT Kootenays Region - Geotech and Materials Engineering
MoT Northwest Region - Geotech and Materials Engineering
MoT Northwest Region - Highway Engineering
MoT South Coast Region - Geotech and Materials Engineering
MoT Thompson Okanagan Region - Geotech and Materials Engineering
MoT Thompson-Okanagan Region - Highway Engineering
MoT Vancouver Island Region - Highway Engineering
N.D.Lea Consultants
Northwest Hydraulic Consultants
NovaTrans Engineering Ltd.
Par Terre Consulting
PBA Engineering Ltd.
Reid Crowther & Partners Ltd.
Sandwell Engineering Inc.
Shaflik Engineering Ltd.
SHIP Environmental Consultants
Stantec Consulting Ltd.
Sutherland Environmental Associates Ltd.
Thurber Engineering Ltd.

Vancouver Island Highway Project - Ministry Employees

Abel, Catherine
Abram, Sean
Aikin, Pat
Aird, Tom
Andres, Amanda
Archer, Barbara
Aston, Carol
Baal, Paul
Badiei-Arani, Nahid
Bailes, Sheila
Barlow, Craig
Beaudoin, Lorrie
Bell, Kathy
Bell, Valerie
Boteju, Kap
Bourassa, Barton
Brown, Jenny
Buckingham, Angela
Cairns, Jennifer
Camilleri, Joe
Campbell, Sandra
Carmichael, Sonii
Carswell, Judy
Casey, Ross
Cech, Peter
Chang, David
Chant, Jon
Chapman, Laurie
Clark, Tom
Coates, Ross
Collins, Mark
Convey, Krista
Coward, Laura
Crockett, Keith
Curdie, Jamie
Currie, Heather
Danby, Joyce
Daniels, Tiffaney
Day, Brian
Dewan, Nancy
Djakovacki, Serge
Dodsworth, Dennis
Dorrell, Sheena
Dunham, Karen
duPlessis, Vickie
Earl, Hilda
Ebbs-Canavan, Lisa
Eggleton, (Kaziechko) Renee
Elgie, Elizabeth
English, Ralph
Farrell, Eliah
Faucher-Quesnel, Nikki
Ferguson, Erika
Fleming, Ian
Fong, Brian
Forbes, Al
Forrester, Jennifer
Forster, Larry
Foxx, Tina
Fraser, Don
Friesen, David
Gaddes, Dave
Galambos, Gerry
Gardner, Kevin
Garner, Lorill
Gates, Charles
Gentile, Alicia
Giles, George
Giroux, Chantel
Grant, Elaine
Grant, Gordon
Guarnaschelli, Marco
Hallas, Mike
Halldorson, Janice
Harding-Greenway, Sheryl
Harlow, John
Hayashida, Christine
Heckman, Valerie
Ho, Ruthann
Holt, Sylvia
Hystek, Danielle
Izett, Alex
Jellema, Wim
Johnson, Pauline
Jones, Leanne
Jones, Norman
Kaiser, Kevin
Karlsson, Carole
Kelly, Susan
Kenny, Edith
Kent, Mike
Kern, Bryan
King, Shayne
Kitson, Gina
Klaver, Jim
Kordyban, Jaya
Kosa, Steve
Krueckl, Bob
LaCoste, Bella
Lam, Steven
Langner, Dean
Larsan, Shelley
Leather, Ben
Leather, Dave
Lee, Tony
Lees, Stephen
Lenton, Brian
Leslie, Stephen
Li, Raymond
Lidkea, Tom
Lister, Brent
Lister, Don
Lockett, David
Lofgren, Roger
Louie, Don
Louis, Larry
Lowres, Nancy
Luco, Rob
Macdonald, Kathryn
Mack, Betsy
Macleod, Cameron
Mah, Peter
Mathieson, Ron
Matthews, Ian
Maurer, Lotar
Maurer, Wendy
Mazza, Gene
McCormack, Brian
McCormack, James
McDonald, Jane
McDougall, Shanie
McKay, Dawn
McLean, Larry
Mearns, Warren
Merston, Nancy
Mertton, Greg
Miller, Deborah
Miller, Susan
Montgomery, Shari
Moorman, Wayne
Morley, Chris
Mosby, Gord
Mueller, Tobias
Nanton, Mac
Newland, Terri
Newlands-Hale, Marie
Nixon, Tom
Pakos, Linda
Palynchuk, Wendy
Pearce, Scott
Pender, Doug
Pennells, Ernie
Peter, Ted
Peters, John
Peverett, Max
Piasentin, Eddy
Planiden, Al
Polster, Dave
Porter, Al
Prudente, Dory
Querengesser, Donna
Quirk, Sherry
Rampon, Art
Ramsden, Dianne
Randall, Ken
Renaud, Lori
Rhode, F. Earle
Ritchie, Colin
Ritchie, Grant
Ross, Larry
Ruffo, Gord
Saprunoff, Shelagh
Sawlor, Brent
Sawyer, Randy
Schmid, Wilf
Shaw, Kathy
Silva, Laura
Silva, Rick
Simmons, Greg
Singer, Gregg
Slocomb, Pat
Smart, Heather
Smith, Cindy
Smith, Lucas
Smith, Sheila
Snidal, Jim
Snyders, Anita
Stuempel, Jack
Sukkel, Wouter
Swanson, Virgil
Sweeting, Karolyn
Tarkanen, Peggy
Tekano, Murray
Tott, Marie
Tran, Nam
Vanderhaave, Simone
Waring, Tom
Watt, Ann
Weber, Dan
Weir, Heather
Wild (Berg), Stacey
Wild, Paula
Williams, Georgia
Wolski, Ernest
Wong, Gary
Wong, Helena
Wong, Sean
Wong, Steve
Wright, Lee
Yuzdepski, Kelly
Zerr, Russ